point of the pellet, but below the melting point of the silicon, thereby to melt the pellet and to permit the sodium to remove the silicon-dioxide layer on the crystal and simultaneously to dissolve an adjacent region of the crystal; cooling the pellet and the crystal at a predetermined rate to regrow onto the crystal at least a portion of the dissolved crystal together with atoms of gallium from the pellet; and further cooling the pellet and the crystal to solidify the remainder of the alloy pellet as an alloy button adjacent to and in electric contact with the regrown region.

9. The method of removing the germanium-dioxide layer from a region of a germanium starting crystal and simultaneously fusing a metal alloy pellet to the region of the crystal, said method comprising the steps of: placing an alloy pellet including sodium, a solvent metal and gallium in contact with a region of the crystal; heating the alloy pellet and the crystal to a predetermined temperature above the melting point of the pellet, but below the melting point of the germanium to melt the pellet to permit the sodium to remove the germanium-dioxide layer on the crystal and simultaneously dissolve an adjacent region of the crystal; cooling the pellet and the crystal at a predetermined rate to regrow onto the crystal at least a portion of the dissolved crystal together with atoms of gallium from the alloy pellet; further cooling the pellet and the crystal to solidify the remainder of the pellet as an alloy button adjacent the regrown region; and etching off the alloy button from the regrown region to expose the surface of the regrown region.

10. The method of producing an ohmic contact to a P-type conductivity semiconductor starting crystal by fusing a metal alloy pellet containing gallium to the starting crystal, said method including the steps of: placing an alloy pellet including sodium and gallium in contact with a region of the crystal; heating the crystal and the pellet to a predetermined temperature above the melting point of the pellet, but below the melting point of the crystal, thereby to melt the pellet and to dissolve therein an adjacent region of the crystal; cooling the pellet and the crystal at a predetermined rate to regrow onto the crystal at least a portion of the dissolved crystal together with atoms of gallium from the pellet; and further cooling the pellet and the crystal to solidify the remainder of the pellet as an alloy button adjacent to and in electric contact with the regrown region.

11. In a fused junction semiconductor translating device, the combination comprising: a semiconductor crystal of one conductivity type; said crystal having therein a region of the opposite conductivity type; and a metallic alloy button molecularly connected to said crystal at said region, said button consisting essentially of gallium, an alkali metal selected from the group consisting of sodium, potassium, cesium and rubidium and a solvent metal.

12. A fused junction semiconductor translating device comprising: a semiconductor crystal of one conductivity type; said crystal having therein two spaced regions, each being of the opposite conductivity type; and two metallic alloy buttons, each being electrically connected to said crystal at one of said regions, each of said buttons consisting essentially of gallium, an alkali metal selected from the group consisting of sodium, potassium, cesium and rubidium and a solvent metal.

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